

ABSTRACT OF THE DISCLOSURE

A diffusing optical fiber tip yielding a homogenous output pattern having a total illumination angle of at least 180 degrees. The diffusing optical fiber tip has an outer diameter which is no greater than that of the optical fiber, and appears as a point source of illumination, having substantially the same output pattern when immersed in water as it does in air. The diffusing optical fiber tip is manufactured on the end of a typical acrylic optical fiber by causing longitudinal stresses in the fiber end, which are then relieved by forming axial cracks in the fiber core at the optical fiber tip. As a result, light exiting the optical fiber must traverse a scrambled pathway caused by a complex interaction of reflections and refractions, yielding wide angle diffuse illumination.